Imperial Solar Energy Center South

Appendix F

Land Evaluation and Site Assessment (LESA)

Prepared by BRG Consulting, Inc.

April 2010

Imperial Solar Energy Center South
Land Evaluation and Site Assessment

Prepared for:

County of Imperial
Planning and Development Services Department

Prepared by:

BRG Consulting, Inc.

August 2010

Table of Contents

List of Figures

List of Tables

This page intentionally left blank.

1.0 INTRODUCTION

The Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The LESA system is a point-based approach that is composed of six different factors. Two Land Evaluation factors are based upon measures of soil resource quality. Four Site Assessment factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds (Department of Conservation, 1997).

Appendix G of the California Environmental Quality Act (CEQA) Guidelines identifies the California Agricultural LESA Model as an optional model to use in assessing impacts on agriculture and farmland. A LESA Model was prepared for the proposed Imperial Solar Energy Center South project, and the results are provided below.

2.0 PROJECT DESCRIPTION

2.1 Environmental Setting

The proposed action site of the proposed photovoltaic facility is located on 946.6 gross acres of privately-owned, undeveloped and agricultural lands, in the unincorporated Mt. Signal area of the County of Imperial, approximately eight miles southwest of the City of El Centro. 838 net acres of the total acres are considered buildable lands.

The project site is located on the western and southern fringe of developed agricultural lands in the County. The U.S. international border with Mexico is located immediately south of the project site. Federal lands under jurisdiction of the Bureau of Land Management (BLM) are located immediately west of the project site. More specifically, this adjacent BLM land is designated as Utility Corridor "N" within the Yuha Desert, in the BLM's California Desert Conservation Area Plan. Agricultural lands are located to the north and east of the project site.

2.2 Project Characteristics

The proposed action is the development of a photovoltaic (solar power) facility on 946.6 gross acres (838 net buildable acres) of mostly undeveloped and agricultural lands. The project would include a facility consisting of ground mounted photovoltaic solar power generating system, supporting structures, operations and maintenance building, substation, water treatment facility, plant control system, meteorological station, roads and fencing. The photovoltaic facility would interconnect to the utility grid at the 230 kV side of Imperial Valley Substation via an approximately five-mile long transmission line. The

Imperial Valley Substation is located on isolated federal lands managed by the BLM. The proposed right-of-way (ROW) for the electrical transmission line corridor would be 120-feet wide, and would be located within Utility Corridor "N" of the BLM's California Desert Conservation Plan Area.

3.0 LESA EVALUATION

The site was evaluated using the California LESA Model to rate the quality and availability of agricultural resources for the proposed action site and to identify whether the proposed action would meet the threshold criteria as a significant impact to Agricultural Resources under CEQA Guidelines. The LESA evaluates land use and site assessment factors to identify if the project would result in a significant agricultural resources impact. The factors are evaluated in the following sections.

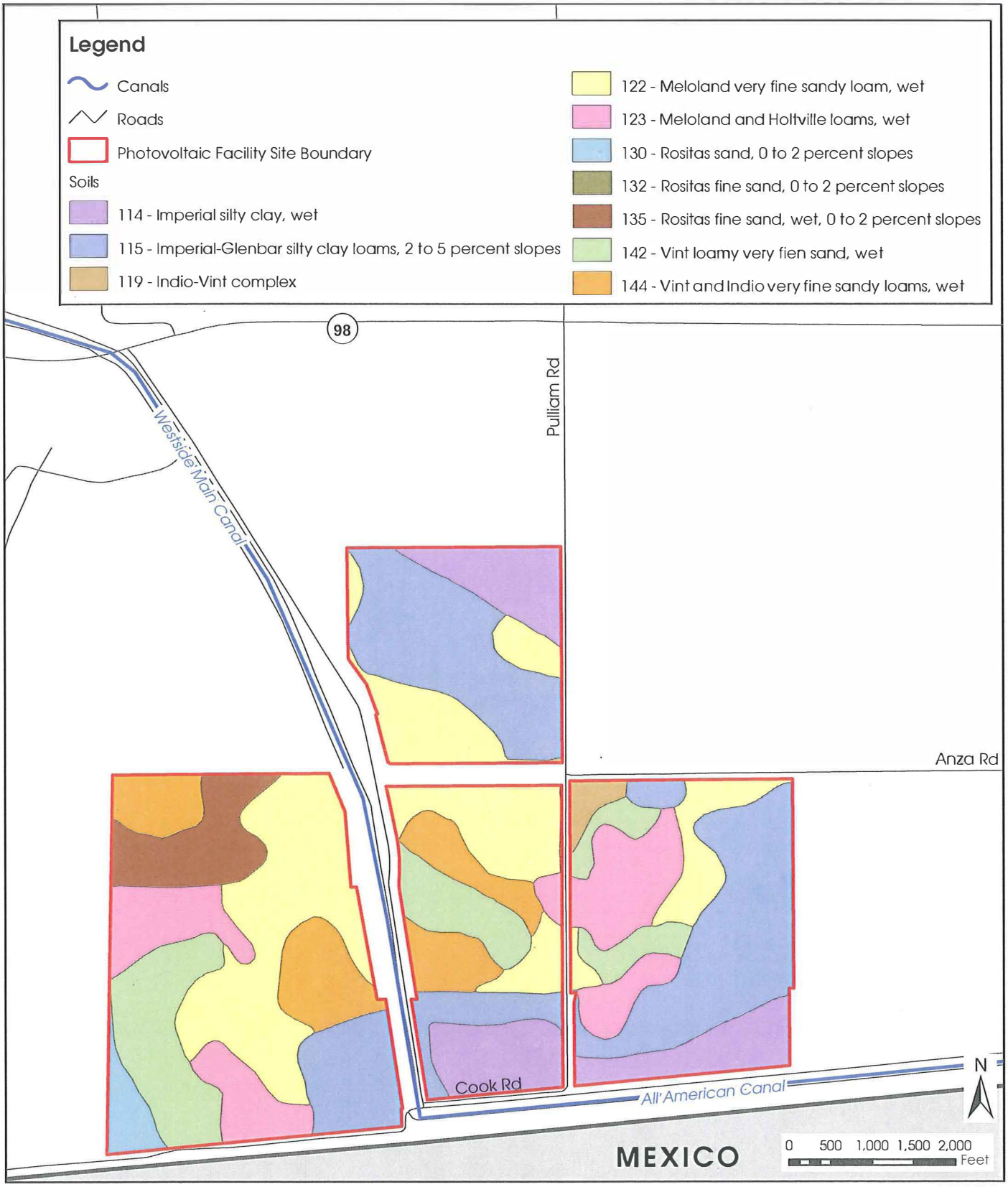
3.1 Land Evaluation

The Land Evaluation portion of the LESA Model focuses on two main components that are separately rated:

1. **The Land Capability Classification Rating**: The Land Capability Classification (LCC) indicates the suitability of soils for most kinds of crops. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating.

2. **The Storie Index Rating**: The Storie Index provides a numeric rating (based upon a 100 point scale) of the relative degree of suitability or value of a given soil for intensive agriculture use. This rating is based upon soil characteristics only.

The United States Department of Agriculture survey found a variety of ten soil types present on the project site. These include Imperial silty clay (wet); Imperial-Glenbar silty clay loams (2 to 5 percent slopes); Indio-Vint complex; Meloland very fine sandy loam (wet); Meloland and Holtville loams (wet); Rositas sand (0 to 2 percent slopes); Rositas fine sand (0 to 2 percent slopes); Rositas fine sand (wet, 0 to 2 percent slopes); Vint loamy very fine sand (wet); and, Vint and Indio very fine sandy loams (wet). Figure 1 depicts the distribution of soil types on the project site. Table 1 details the varieties of soils found on the project site, along with their Capability Class and Storie Index rating.



SOURCE: U.S. Dept of Agriculture, 2006; BRG Consulting, Inc., 2010

8/16/10

BRG CONSULTING, INC.

Imperial Solar Engery Center South

Project Soil Types

FIGURE 1

F:\projects\1009 Imperial Solar South\LESA Analysis_Aug2010\Figure 1 Project Soils.mxd

TABLE 1
Soil Suitability

Map Symbol	Mapping Unit	Capability Class	Storie Index Rating
114	Imperial silty clay (wet)	IIIw-6	22
115	Imperial-Glenbar silty clay loams (2 to 5 percent slopes)	IIIw-6	34
119	Indio-Vint complex	IIs-1	90
122	Meloland very fine sandy loam (wet)	IIIw-3	43
123	Meloland and Holtville loams (wet)	IIIw-3	43
130	Rositas sand (0 to 2 percent slopes)	IVs-4	57
132	Rositas fine sand (0 to 2 percent slopes)	IIIs-4	62
135	Rositas fine sand (wet, 0 to 2 percent slopes)	IIIw-4	36
142	Vint loamy very fine sand (wet)	IIw-4	57
144	Vint and Indio very fine sandy loams (wet)	IIw-3	60

Notes: IIIw-6 capability rating indicates soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations caused by salt or alkali.

IIs-1 capability rating indicates soils that have moderate limitations that reduce the choice of plants, or that require moderate conservation practices, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has a problem or limitation caused by slope or by an actual or potential erosion hazard.

IIIs-4 capability rating indicates soils with severe limitations that reduce the choice of plants, or that require special conservation practices, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has problems or limitations caused by sandy or gravelly soils with a low available water-holding capacity.

IIIw-3 capability rating indicates soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations of slow or very slow permeability of the subsoil or substratum caused by a clayey subsoil or a substratum that is semi-consolidated.

IVs-4 capability rating indicates soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has problems or limitations caused by sandy or gravelly soils with a low available water-holding capacity.

IIIw-4 capability rating indicates soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations caused by sandy or gravelly soils with a low available water-holding capacity.

IIw-4 capability rating indicates soils with moderate limitations that reduce the choice of plants, or that require moderate conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations caused by sandy or gravelly soils with a low available water-holding capacity.

IIw-3 capability rating indicates soils with moderate limitations that reduce the choice of plants, or that require moderate conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations of slow or very slow permeability of the subsoil or substratum caused by a clayey subsoil or a substratum that is semi-consolidated.

Source: United States Department of Agriculture, 1981; BRG Consulting, Inc., 2010.

The LESA Model assigns ratings to each land capability class and multiplies that number by the proportion of the project area that contains each soil class to find the Land Capability Classification score. A Storie Index score is calculated by multiplying the proportion of the project within each soil type by the soil type's Storie Index rating. Table 2 provides a summary of the Land Evaluation (LE) scores. The final LE and Site Assessment (SA) scores are entered into the Final LESA Score Sheet as shown in Table 6, later in this report.

TABLE 2
Land Capability Classification (LCC) and Storie Index Score

A Soils	B Acres	C Proportion of Project Area	D LCC*	E LCC Rating	F LCC Score	G Storie Index	H Storie Score
114 (Imperial silty clay, wet)	85.8	10.2%	IIIw-6	60	6.12	22	2.2
115 (Imperial-Glenbar silty clay loam, wet, 0-2% slopes)	219.1	26.1%	IIIw-6	60	15.66	34	8.9
119 (Indio-Vint complex)	7.3	0.87%	IIs-1	80	0.7	90	0.8
122 (Meloland very fine sandy loam, wet)	208.8	24.9%	IIIw-3	60	14.94	43	10.7
123 (Meloland and Holtville loams, wet)	97.4	11.6%	IIIw-3	60	6.96	43	5.0
130 (Rositas sand, 0-2% slopes)	12.7	1.5%	IVs-4	40	0.6	57	0.91
132 (Rositas fine sand, 0-2% slopes)	0.07	0.008%	IIIs-4	60	0.005	62	0.005
135 (Rositas fine sand, wet, 0-2% slopes)	36.7	4.4%	IIIw-4	60	2.64	36	1.6
142 (Vint loamy very fine sand, wet)	94.2	11.2%	IIw-4	80	8.96	57	6.4
144 (Vint and Indio very fine sandy loams, wet)	76.5	9.1%	IIw-3	80	7.28	60	5.5
TOTALS	**838.6**	**100%**	--	--	**63.9**	--	**42**

Notes: * See Table 1 for a description of the soil's LCC rating.
Source: California Department of Conservation, 1997; BRG Consulting, Inc., 2010.

3.2 Site Assessment Factors

The California LESA Model includes four Site Assessment factors that are separately rated and include:

1. Project Size Rating
2. Water Resources Availability Rating
3. Surrounding Agricultural Land Rating
4. Surrounding Protected Resource Land Rating

A. Project Size Rating

The project size rating recognizes the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility in farm management and marketing decisions. Larger operations tend to have greater impacts upon the local economy through direct employment, as well as impacts upon supporting industries and food processing industries (California Department of Conservation, 1997).

In terms of agricultural productivity, the size of the farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide greater economic return per acre unit. For a given project, instead of relying upon a single acreage figure in the Project Size rating, the project is divided into three acreage groupings based upon the LCC ratings that were previously determined in the LE analysis. Under the Project Size rating, relatively fewer acres of high quality soils are required to achieve a maximum Project Size score. Alternatively, a maximum score on lesser quality soils could also achieve a maximum Project Size score. Table 3 summarizes the Project Size score for the proposed action.

TABLE 3
Project Size Score

Soils	Acres	LCC	LCC Class I or II	LCC Class III	LCC Class IV-VII
114 (Imperial silty clay, wet)	85.8	IIIw		85.8	
115 (Imperial-Glenbar silty clay loam, wet, 0-2% slopes)	219.1	IIIw		219.1	
119 (Indio-Vint complex)	7.3	IIs	7.3		
122 (Meloland very fine sandy loam, wet)	208.8	IIIw		208.8	
123 (Meloland and Holtville loams, wet)	97.4	IIIw		97.4	
130 (Rositas sand, 0-2% slopes)	12.7	IVs			12.7
132 (Rositas fine sand, 0-2% slopes)	0.07	IIIs		0.07	
135 (Rositas fine sand, wet, 0-2% slopes)	36.7	IIIw		36.7	
142 (Vint loamy very fine sand, wet)	94.2	IIw	94.2		
144 (Vint and Indio very fine sandy loams, wet)	76.5	IIw	76.5		
TOTAL ACRES	**838.6**		**178**	**647.87**	**12.7**
PROJECT SIZE SCORES			**100**	**100**	**0**
HIGHEST PROJECT SIZE SCORE			**100**		

Source: California Department of Conservation, 1997; BRG Consulting, Inc., 2010.

B. Water Resources Availability Rating

The Water Resource Availability Rating is based upon identifying the various water sources that may supply a given property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought.

The proposed action is completely served by irrigation water provided by the Imperial Irrigation District (IID). The proposed action was given the highest Water Resource Availability Rating given the consistent water delivery provided by IID to the project site. The project has no physical or economic restrictions that may alter water resource supply during either drought or non-drought years. Table 4 summarizes the Water Resources Availability score.

Table 4
Water Resource Availability

Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score
1	Irrigation Water	100%	100	100
Total Water Resource Score				**100**

Source: California Department of Conservation, 1997; BRG Consulting, Inc., 2010.

C. Surrounding Agricultural Land Rating

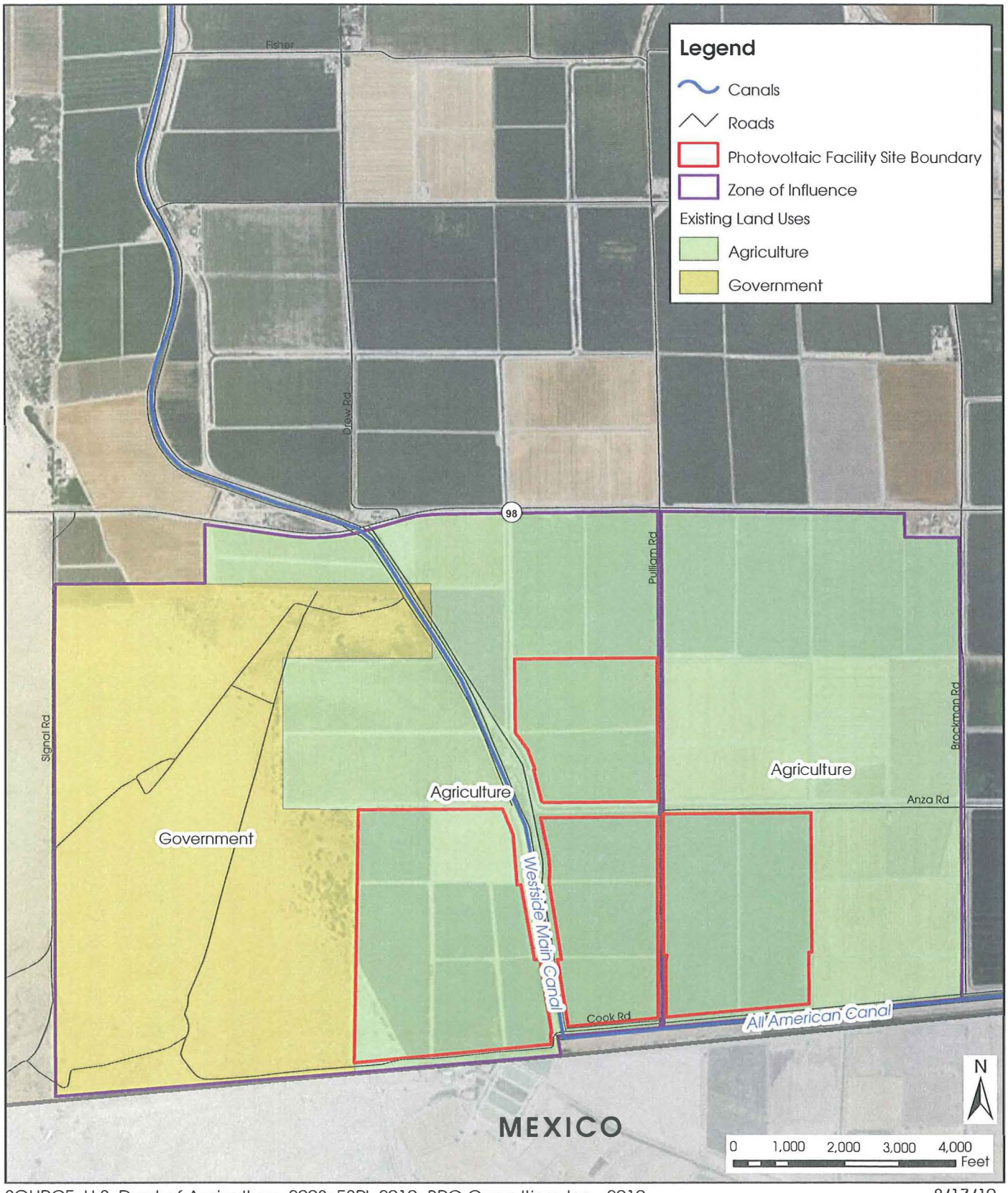
The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands within the Zone of Influence (ZOI) of the subject parcel. The "Zone of Influence" is the amount of surrounding lands up to a minimum of one-quarter mile from the project boundary. Parcels that are intersected by the 0.25-mile buffer are included in their entirety. Based upon the percentage of agricultural land in the ZOI, the project site is assigned a "Surrounding Agricultural Land" score. The LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production (California Department of Conservation, 1997).

Lands used for agricultural production are located adjacent to the project site mostly to the north and east. Figure 2 depicts the distribution and amount of land used for agricultural uses within 0.25 mile of the project site. The Surrounding Agricultural Land score for the proposed action is provided in Table 5.

Table 5
Surrounding Agricultural Lands

Total Acreage within "Zone of Influence"	Acres in Agricultural Production	Acres of Protected Resource Land	Percent in Agriculture	Percent Protected Resources Land	Surrounding Agricultural Land Score	Surrounding Protected Resource Land Score
2613.01	1461.9	0	55.9%	0%	40	0

Source: Department of Conservation, 1997; BRG Consulting, Inc., 2010.



SOURCE: U.S. Dept of Agriculture, 2008; ESRI, 2010; BRG Consulting, Inc., 2010

8/17/10

BRG CONSULTING, INC.

Imperial Solar Energy Center South

Surrounding Land Uses

FIGURE 2

F:\projects\1009 Imperial Solar South\LESA Analysis_Aug2010\Figure 2 Surrounding Land Uses.mxd

D. Surrounding Protected Resource Land Rating

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating, and is scored in a similar manner. Protected resource lands are those lands with long-term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted land;
- Publicly owned lands maintained as park, forest, or watershed resources; and,
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses.

No protected resource lands are located within the ZOI. Because the percentage of protected land is less than 40%, the Surrounding Protected Resource Land Rating score is zero.

4.0 SUMMARY

The LESA Model is weighted so that half of the total LESA score of a given project is derived from the LE and half from the SA. As shown in Table 6, the LE subscore is 26.5, while the SA subscore is 36.0. The final LESA score is 62.5. As shown in Table 7, a final LESA score between 60 to 79 is considered significant unless either LE or SA subscore is less than 20 points. Therefore, with both subscores (LE and SA) above 20, the project is considered to have a significant impact on agricultural resources.

TABLE 6
Final LESA Score Sheet Summary

	Factor Rating (0-100 Points)	Factor Weighting (Total = 1.00)	Weighted Factor Rating
Land Evaluation (LE)			
1. Land Capability Classification (LCC Rating)	63.9	0.25	15.96
2. Storie Index Rating	42	0.25	10.5
		Land Evaluation Subscore	*26.5*
Site Assessment (SA)			
1. Project Size Rating	100	0.15	15
2. Water Resource Availability Rating	100	0.15	15
3. Surrounding Agricultural Land Rating	40	0.15	6
4. Surrounding Protected Resource Lands Rating	0	0.05	0
		Site Assessment Subscore	*36.0*
		TOTAL	**62.5**

Source: California Department of Conservation, 1997; BRG Consulting, Inc. 2010.

TABLE 7
California LESA Model Scoring Thresholds

Total LESA Score	Scoring Decision
0 to 39 Points	Not considered significant
40 to 59 Points	Considered significant only if LE and SA subscores are greater than or equal to 20 points
60 to 79	Considered significant unless either LE or SA subscore is less than 20 points
80 to 100	Considered significant

Source: California Department of Conservation, 1997.

References

Bureau of Land Management, 2009. BLM Lands. Prepared by the Bureau of Land Management, 2009.

California Department of Conservation, 1997

California Agricultural Land Evaluation and Site Assessment (LESA) Model, Instruction Manual. Prepared by the California Department of Conservation, Office of Land Conservation, 1997.

ESRI, 2010. Aerial Imagery.

County of Imperial, 2004. Land Use Plan Map. Prepared by the County of Imperial, 2004.

United States Department of Agriculture, 1981

Soil Survey of Imperial County California, Imperial Valley Area. Prepared by the United States Department of Agriculture Soil Conservation Service in cooperation with the University of California Agricultural Experiment Station and Imperial Irrigation District. Issued October 1981.